

This article was downloaded by:

On: 29 January 2011

Access details: *Access Details: Free Access*

Publisher *Taylor & Francis*

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



## Phosphorus, Sulfur, and Silicon and the Related Elements

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713618290>

### Application of Thermodynamics of Accumulation Processes Regularities in Crystalline Phosphates Properties Investigation

M. R. Mehandjiev<sup>a</sup>

<sup>a</sup> "BIOTECH" Science & Engineering Co., Varna, Bulgaria

**To cite this Article** Mehandjiev, M. R.(1990) 'Application of Thermodynamics of Accumulation Processes Regularities in Crystalline Phosphates Properties Investigation', *Phosphorus, Sulfur, and Silicon and the Related Elements*, 51: 1, 426

**To link to this Article:** DOI: 10.1080/10426509008040950

**URL:** <http://dx.doi.org/10.1080/10426509008040950>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.informaworld.com/terms-and-conditions-of-access.pdf>

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

## APPLICATION OF THERMODYNAMICS OF ACCUMULATION PROCESSES REGULARITIES IN CRYSTALLINE PHOSPHATES PROPERTIES INVESTIGATION

M.R.MEHANDJIEV

"BIOTECH" Science & Engineering Co., P.O.Box 354,  
Varna 9000, Bulgaria

A polyenergetic conjugation relationship (PCR) existing between the intensity or capacity factors of state of both has been developed in the thermodynamics of accumulation processes for processes and effects without mass transfer and with or without qualitative transformation in the affected system. The remperature dependence of the solubility in water of crystalline phosphates as:  $K_2HPO_4$ ,  $Na_2HPO_4$ ,  $NH_4H_2PO_4$ ,  $Na_3PO_4$ ,  $Na_4P_2O_7$  proved to be a strongly expressed polyenergetic conjugation property [1]. Further investigation proved that the presence of more than one crystal types or a crystal phase change in the crystals-saturated solution heterogeneous systems, caused by the crystallization temperature used, can be detected by the values of the concentration exponents in a PCR. Moreover, the dissolving rates based on the values of crystal particles' surface area and temperature can be predicted by PCR-derivatives.

- [1] M.R.Mehandjiev, Solubility of Crystalline Phosphates as Polyenergetic Property. Paper of Internat. Conference on Phosphorus Chemistry, June 1-5, 1981, Durham, N.Carolina, USA, Abstracts' Volume, Duke University, Durham, 1981, Abstr. No 201.